

NATLOCK TONE TEST EQUIPMENT EP14L/503

Introduction

The EP14L/503 accepts a feed of PAL subcarrier and produces audio-frequency Natlock error tones. It is designed for use in areas where colour-signal timing and subcarrier phase comparators are installed. The tones are used for gain and equalisation tests on the error transmission circuit between local and remote sites and also enable operation of the remote Tone Decoder to be checked. It can also be used to check local Natlock equipment

The EP14L/503 cannot be used to test the UN17/508 three-tone monochrome decoder.

The EP14L/503 consists of the following units:

- CD2/501 Tone Encoder
 - UN9/571 Natlock Tone Switch Unit
 - PS2/22B Stabilised Power Supply
 - PN3A/16B Interconnection Panel
- } on one chassis

The input connections to the equipment are a pair of parallel-connected 50-ohm BNC sockets which can be used for bridging or termination. The output

frequency is selected by means of an eight-position rotary switch mounted on the front panel. Back-panel wiring of the unit is shown in Fig. 1.

General Specification

Input	1 volt p-p PAL sub-carrier.
Input Impedance	high relative to 75 ohms.
Output Frequencies	893 Hz, 977 Hz, 1071 Hz, 1173 Hz, 1258 Hz, 1408 Hz, 1542 Hz, or 1689 Hz.
Output Waveform	Sinusoidal at all frequencies.
Output Frequency Tolerance	± 1 Hz.
Nominal Output Level	0 dB into 600 ohms, balanced.
Power Requirements	240 volts a.c.
Temperature Range	0°C to 45°C.
Weight	1.8 kg (4 lb.)

General Description

D.C. signals which simulate those generated in the Natlock sync-timing and subcarrier phase comparators are produced in the UN9/571 Tone Switch Unit. An eight-position rotary switch on the front panel of this unit switches the d.c. voltages to the control inputs of the CD2/501 Tone Encoder in the combinations necessary to produce each of the tone frequencies.

In addition to the normal A' R' F' and C' outputs associated with sync-timing and subcarrier phase comparators the UN9/571 has a fifth output designated X. A logic 0 state on the A' and F' outputs produces a Tone-coder output frequency of 1689 Hz. This tone is not used in the Natlock synchronising system, but is provided for decoder alignment purposes.

The CD2/501 output frequency can be monitored at the listen jack on the front panel of the UN9/571.

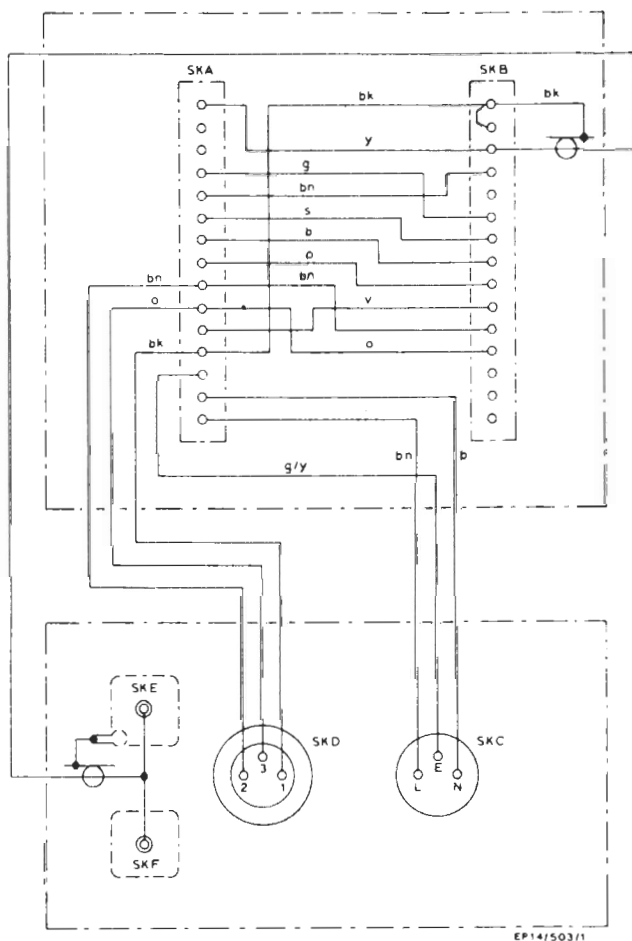


Fig. 1. Back-panel Wiring of the EP14/503

Test Procedure**Apparatus Required**

Electronic frequency counter to read up to 2 kHz
 Oscilloscope
 ATM/1.
 AVO Model 8 meter
 Termination 75-ohm BNC
 Source of PAL subcarrier, 75 ohms source impedance, 1 volt when terminated.

TABLE 1

Output Pin Number					Switch Position
8 (R')	9 (F')	10 (X)	11 (A')	12 (C')	
-6	-6	0	0	0	893 (FR)
-6	0	0	0	0	977 (R)
0	0	0	0	-3	1071 (CR)
0	0	0	0	0	1173 (N)
0	0	0	0	-6	1285 (CA)
0	0	0	-6	0	1408 (A)
0	-6	0	-6	0	1542 (FA)
0	-6	-6	-6	0	1689

All readings in volts. Tolerance ± 0.5 volts.

Tone Switch Unit UN9/571

Connect the AVO-8 positive lead to pin 4 of the Painton 15-pole plug (or chassis) and check that at each switch position the voltages obtained on the output pins of the plug are as shown in Table 1.

Tone Encoder CD2/501

1. Apply PAL Subcarrier to one of the BNC sockets at the rear of the EP14L/503. Connect the other socket to the oscilloscope input terminated in 75 ohms. Check that the level is 1 volt p-p.
2. Connect the 600-ohm input of the ATM/1 between pins 2 and 3 of the XLR tone output socket at the rear of the EP14L/503. Switch to 1071 Hz on the UN9/571 and check that by adjustment of R31 in the CD2/501 a reading of +6 dB can be obtained.
3. Re-set to give a reading of 0 dB on the ATM/1, switch to 1542 Hz on the UN9/571 and check that the level is 0 dB ± 2 dB.
4. Remove the ATM/1 and connect the frequency counter between pins 1 and 2 of the tone output socket with its earth on pin 1.
5. Rotate the selector switch on the UN9/571 and check that in each switch position the counter reading is within 1 Hz of that indicated.

JRWC 2/71